Jaemin **Choi**

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Education

KAIST *Daejeon, South Korea*

M.S. in School of Computing (expected) *Sep. 2021 - Aug. 2023*

- GPA: 4.01 / 4.3
- Advisor: Prof. Jeehoon Kang
- Lab: Concurrency and Parallelism Laboratory (https://cp.kaist.ac.kr/)

KAIST *Daejeon, South Korea*

B.S. in School of Computing *Mar. 2017 - Aug. 2021*

- GPA: 3.86 / 4.3

Skills

Programming	Python, Rust, C++
System	Linux
Version Control	Git / GitHub / GitLab
Cloud	Heroku
Misc	Competitive Programming, Coq, LaTeX
Language	Korean (native), English (fluent, TOEFL 103)

Experience

KAIST *Daejeon, S.Korea*

Teaching Assistant *Mar. 2021 - Dec. 2021*

- CS230 System Programming (https://cp-git.kaist.ac.kr/cs230/cs230)
- CS220 Programming Principles (https://cp-git.kaist.ac.kr/cs220/cs220-haskell)

Publication

Formal Verification of Chase-Lev Deque in Iris Separation Logic

Jaemin Choi *2023*

MS Thesis.

- Formal proof of the correctness of concurrent Chase-Lev work-stealing deque.
- To my knowledge, the first formal verification of Chase-Lev deque that (1) is foundational (i.e. mechanized in a proof assistant), (2) uses a realistic & unrestrictive implementation, and (3) proves a strong specification.

Modular Verification of Safe Memory Reclamation in Concurrent Separation Logic

Jaehwang Jung, Janggun Lee, **Jaemin Choi**, Jaewoo Kim, Sunho Park, Jeehoon Kang *2023*

Submitted to *ACM SIGPLAN conference on Object-oriented Programming, Systems, Languages, and Applications (OOPSLA).*

- Formally verified modular specification of hazard pointers and RCU, making it easy to extend a data structure's verification to use safe memory reclamation (SMR) schemes.
- I helped verify the SMR schemes, and verified Chase-Lev deque with SMR.

Compass: Strong and Compositional Library Specifications in Relaxed Memory Separation Logic

Hoang-Hai Dang, Jaehwang Jung, **Jaemin Choi**, Duc-Than Nguyen, William Mansky, Jeehoon Kang, Derek Dreyer *2022*

ACM SIGPLAN conference on Programming Languages Design and Implementation (PLDI).

- Framework for strong specifications of data structures in relaxed memory model.
- I verified Treiber's stack with the Compass specification.

Honors & Awards

International Awards

2022 **26th Place**, ICPC World Finals Dhaka *Dhaka, Bangladesh*

Domestic Awards

2020 **2nd Place**, ICPC Seoul Regional *Online*
2020 **3rd Place Award**, Samsung Collegiate Programming Cup *Online*
2019 **7th Place**, ICPC Seoul Regional *Seoul, S.Korea*
2019 **4th Place Award**, Samsung Collegiate Programming Cup *Seoul, S.Korea*
2018 **11th Place**, ICPC Seoul Regional *Seoul, S.Korea*
2018 **Winner**, KAIST ACM-ICPC Mock Competition *Daejeon, S.Korea*

Projects

miniCS: Critical Section Minimization

In-class group project *Oct. - Dec. 2019*

- Group project for CS454: Artificial Intelligence Based Software Engineering.
- Uses genetic algorithm to insert locks and unlocks in a given C++ program, with the goal of minimizing the critical sections.
- I employed Clang AST to generate the candidate populations for genetic algorithm.
- Available at: https://github.com/hyunsukimsokcho/miniCS

no: Slack Bot

Personal project *Apr. 2018 - Jun. 2022*

- General-purpose Slack bot supporting various features including todo list, highly configurable Wordle game, image storage, and more.
- Wraps Slack's JSON-based API into a higher-level Python API so that others can more easily contribute.
- Implemented in Python with Slack events API and Dropbox API, and hosted on Heroku server.
- (Yes, the bot is actually named "no")

Extracurricular Activity

Samsung Software Membership *Seoul, S.Korea*

Member *Aug. 2020 -*

- Membership for Samsung Collegiate Programming Cup award winners & equivalents.
- Wrote posts about advanced algorithms.

Competitive Programming Problem Writer

Jun. 2017 -

- Problem writer for several programming contests, including:
  - 2017, 2021, 2022 UCPC Programming Contest
  - 2017, 2019, 2020, 2021 KAIST ACM-ICPC Mock Competition
  - 2021 KAIST RUN Spring Contest

RUN (Algorithmic Problem Solving Club of KAIST) *Daejeon, S.Korea*

Member & President in 2020 *Mar. 2017 - Feb. 2021*

- Gained knowledge and experience about competitive programming and algorithms.
- Won awards in several programming contests.
- Problem author of the school programming contests for 4 years.
- Worked as the club president in 2020: taught basic algorithms, and organized 2020 KAIST ACM-ICPC Mock Competition.